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Press Release

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Digital transformation – key topic of BAU 2023

Digital processes are changing the construction industry

- **Need to catch up at BIM**
- **Data enables industrial production and serial construction**
- **IoT, virtual reality and artificial intelligence on the building site**

While industries such as the automotive sector or machine and plant engineering are indeed somewhat more advanced, the construction industry is also making inextricable progress in digital transformation – in all phases of the planning and construction process, and for everyone involved. BAU 2023 is giving the topic its own exhibition area. In Hall C5, companies will present the latest hardware and software solutions for planning and implementation. In forum C2, experts from planning and engineering offices will report on the digital transformation, and present current solutions using project examples on Friday, April 21.

The basis for digital transformation is the cloud. It enables large quantities of data to be stored in a central location. For construction projects, this often follows a BIM model, to which everyone involved has access. In this digital twin of the real building, all data is continually collected and managed. Changes can be carried out in real time. As a result there is transparency, and the planning and construction process is made more reliable, quicker and less susceptible to errors or misunderstandings.

Just as important as an understandable planning and construction process are time management and cost controls. Software tools that determine volumes using a BIM model and use this to calculate costs are already providing reliability in the planning phase. In the event of material bottlenecks or price increases, different implementation methods and materials can be compared.

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Need to catch up at BIM

Although the vast majority of the industry recognizes the added value of these technologies, less than half of German planning and construction companies consider themselves well positioned in terms of digitalization, as indicated by a study by business consulting firm PwC from December 2020. More than two thirds of those surveyed felt the need to catch up in terms of BIM. So, there is awareness of the potential of digital instruments, but implementation is often limited by lack of expertise. One reason for this is that digital solutions are demanded much too seldom by clients. 80 percent of the survey participants reported that this is only sometimes the case – or not at all.

Among other things, the German government's new BIM portal, which launched on October 11, 2022, is to address this situation. This provides information, applications and uniform data for advancing the digitalization of building projects. It includes interactive and web-based tools, data libraries and manufacturer-independent component information. The platform will be continuously improved. It is the result of a step-by-step plan that began in 2015 and was intended to initiate the gradual introduction of BIM. To date, however, the use of BIM is only mandatory for tenders for public infrastructure projects, not for building construction in general.

Data enables industrial production and serial construction

Without digitalization, there is no industrial production: The availability of data in BIM models, both on components and on buildings themselves, is a prerequisite for standardized and automated production at the factory, without which serial and modular construction, often presented as a universal solution for housing shortages and shortages of skilled workers, cannot progress. The digital data is used to create standardized but freely combinable kits that are assembled fully automatically in the factory, be it windows, walls or entire facades. Whole apartments or parts of them are then put together on the construction site, based on standardized floor plans. The advantages of this type of construction are obvious: less construction time, cost savings, less debris and noise on site, and fewer construction defects due to better quality assurance.

Also on the building site: IoT, AR, VR, AI and Machine Learning

Digital tools are not only used in planning, but also on construction sites. The underlying technology for this is the Internet of Things (IoT). It networks devices and construction vehicles, and enables them to interact and operate autonomously. This also applies to robots, which are increasingly doing support work on construction sites – something that's becoming more and more important in view of the shortage of skilled workers. This also includes 3D printing processes, in which robotic arms are now producing entire houses from fast-hardening concrete. In the future, this should also be possible with metal building materials.

Technologies that are better known for their use in mechanical and plant engineering are also slowly finding their way into the construction industry. AI and machine learning, for example, can help with project management. They enable predictions regarding time and cost specifications, and sound the alarm as soon as something goes wrong. Virtual reality (VR) allows planners to immerse themselves in their CAD or BIM model, and augmented reality (AR) can be an important tool for identifying risks and preventing accidents on construction sites. Finally, there are more and more helpful apps for everything to do with construction sites. They are especially useful for construction companies and tradespeople, for example for recording measurements and masses, as well as for communicating with clients or site managers.

In the BAU IT exhibition area in particular, BAU 2023 will show the latest developments in the digitalization of planning and building. In addition, with digitalBAU (February 2024) and digitalBAU conference & networking (July 4-6, 2023), two further shows offer the opportunity to experience the opportunities of digital transformation at first hand.

More information is available at www.bau-muenchen.com or www.digital-bau.com

About BAU
BAU, the world's leading trade fair for architecture, materials and systems, is the largest and most important event in the industry. Unique worldwide, BAU brings together the industry's market leaders in this multi-trade exhibition every two years. The range of exhibits is broken down according to building materials, products and topics. BAU addresses all those involved in planning, construction and the operation of all types of buildings. BAU is also the world's biggest trade fair for architects and engineers. The numerous events in the supporting program, including high-profile forums with experts from around the world, round out the trade fair program.

Messe München
Messe München is one of the leading exhibition organizers worldwide with more than 50 of its own trade shows for capital goods, consumer goods and new technologies. Every year, a total of over 50,000 exhibitors and around three million visitors take part in more than 200 events at the exhibition center in Munich, at the ICM – Internationales Congress Center München, the Conference Center Nord and the MOC Veranstaltungscenter München as well as abroad. Together with its subsidiary companies, Messe München organizes trade shows in China, India, Brazil, South Africa and Turkey. With a network of associated companies in Europe, Asia, Africa, and South America, and with around 70 representatives abroad for more than 100 countries, Messe München has a truly global presence.